

REMARKS

The specification has been revised to use, where appropriate, section headings, the Abstract has been rewritten, and the claims have been amended following the helpful suggestion of the Examiner.

A restriction requirement between a claim group formed of Claims 1-11 and a claim group formed of Claims 12-15, Applicants' election of the former with traverse, and the finality of the restriction requirement are acknowledged. The claims before the Examiner for examination are Claims 1-11.

The rejections of Claims 1-3 under the first and second paragraphs of 35 U.S.C. § 112 are believed overcome by using the format kindly suggested by the Examiner on pages 9 and 10 of the Office Action. Claims 4-11 have been revised to eliminate multiple dependencies and to have those claims read in more conventional U.S. patent format. Thus, all of Claims 1-11 should be in form for further examination here. Should the Examiner, after reviewing the changes to Claims 4-11, believe that further revisions are necessary, he is asked to contact the undersigned to discuss same.

The rejection of Claims 1-3 under 35 U.S.C. § 103 as unpatentable over Gray '677 in view of Parkinson et al. '493 is respectfully traversed.

The present invention is directed to an improved process for the manufacture of refractory material in which the first step of that process involves depositing a dispersion formed of (1) at least one transition metal boride, carbide or borocarbide in powder form and (2) a resin with a coke mass content equal to at least 30% after carbonization. The deposit is dried, cross-linked, carbonized, and then covered with a second dispersion containing silicon in powder form and a binder, which, in turn, is heated to a temperature equal to at least the melting temperature of silicon.

The primary reference is alleged to teach the first four steps of the instant process but Applicants respectfully disagree. The mention at column 6, lines 24-54 of titanium, zirconium, and hafnium borides does not teach the initial steps of the present invention because Gray '677 is specific with respect to the use of a boron oxide in its process. (See, for example, the reference to boron oxide and precursors thereof at column 1, lines 45 -63 of Gray '677). Indeed, the above-mentioned cited portion of the reference describes the borides in relation to their behavior when they are oxidized in relation to B_2O_3 . The discussion relates to oxides and in no proper manner teaches or suggests the dispersion in the first step of the present Claim 1 requiring a dispersion of "at least one metallic compound in powder form" selected from the transition metal borides, carbides, and borocarbides. The discussion at column 9, line 44 of the reference of ZrB_2 is as an element of a dispersion containing a boron powder. The zirconium boride is used only as a provider of zirconium oxide to B_2O_3 . The rejection falls because the primary reference does not teach or suggest the first four steps of the instantly claimed process.

The secondary reference is said to show the last two steps of the instantly claimed process. Applicants respectfully submit that the reference in combination with Gray '677 does not teach or suggest the overall presently claimed invention as Parkinson et al. '493 is directed to a coating containing silicon and some carbon; see column 2, line 51. The present invention in contrast uses a coating containing only silicon in a binder and there is no need for the binder to carbonize. Indeed, the reaction of silicon and carbon produces silicon carbide, which prevents the flow of silicon inside the core material. Parkinson et al. '493 is not properly combinable with Gray '677 and that combination does not teach the present invention.

Applicants also respectfully point out that the process steps of the presently claimed process are important because the first four steps are able to give a carbon coating to the

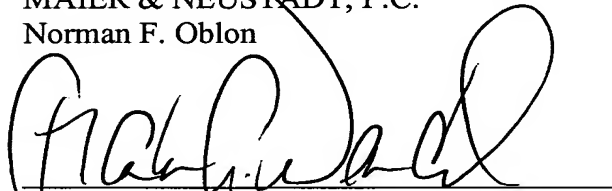
transition metal boride, carbide, or borocarbide in the dispersion. The last two steps of the present process transform carbon to SiC so that each particle is surrounded thereby, a result not contemplated by the single or collective teachings of the cited art. The rejection should be withdrawn.

The Examiner is thanked for acknowledging receipt of certified copy of the priority document and for listing references provided with an Information Disclosure Statement.

In view of the foregoing revisions and remarks, it is respectfully submitted that the application is in condition for allowance and a USPTO paper to those ends is earnestly solicited. The Examiner is requested to telephone the undersigned if additional changes are required in the case prior to allowance.

Respectfully submitted,

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A large, stylized handwritten signature in black ink, likely belonging to Charles A. Wendel, is written over a horizontal line.

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